=> d his

(FILE 'HOME' ENTERED AT 09:28:21 ON 25 SEP 2003)
FILE 'CA' ENTERED AT 09:30:32 ON 25 SEP 2003
L1 1 S JANATA J?/AU AND 1992/PY AND CHEMICAL/TI AND ANAL?/SO
L2 17129 S ELECTROCHEMICAL(6A)(DETECT? OR SENSOR OR SENSING)
L3 13036 S CHEMORESISTOR OR(CHEMORESIST? OR RESIST?)(6A)(DETECT? OR SENSOR OR SENSING)
L4 229 S L2 AND L3
L5 108 S L4 NOT PY>1998
L6 79 S L4 NOT L5 AND PATENT/DT
L7 12 S L6 AND PY<1999
L8 271 S ELECTROCATAL?(6A)(DETECT? OR SENSOR OR SENSING)
L9 1 S L3 AND L8
L10 120 S L5,L7

=> d bib,ab 1-120

L10 ANSWER 28 OF 120 CA COPYRIGHT 2003 ACS on STN
AN 127:302517 CA
TI Array-based vapor **sensing** using chemically sensitive, carbon black-polymer **resistors**
AU Lewis, Nathan S.; Lonergan, Mark C.; Severin, Erik J.; Doleman, Brett J.; Grubbs, Robert H.
CS California Institute of Technology, Pasadena, CA, 91125, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (1997), 3079(Detection and Remediation Technologies for Mines and Minelike Targets II), 660-670
AB The authors describe herein the construction of a simple, low-power, broadly responsive vapor sensor. Carbon black-org. polymer composites swell reversibly upon exposure to vapors. Thin films of carbon black-org. polymer composites were deposited across two metallic leads, with swelling-induced resistance changes of the films signaling the presence of vapors. To identify and classify vapors, arrays of such vapor-sensing elements were constructed, with each element contg. the same carbon black conducting phase but a different org. polymer as the insulating phase. The differing gas-solid partition coeffs. for the various polymers of the **sensor** array produce a pattern of **resistance** changes that can be used to classify vapors and vapor mixts. This type of sensor array was shown to resolve common org. solvents, including mols. of different classes (such as aroms. from alcs.) as well as those within a particular class (such as benzene from toluene and methanol from ethanol).

L10 ANSWER 79 OF 120 CA COPYRIGHT 2003 ACS on STN
AN 113:189873 CA
TI Discrimination of drinks with a novel **sensing** system **detecting electrochemical** nonlinearity
AU Nakata, Satoshi; Yoshikawa, Kenichi
CS Nara Univ. Educ., Nara, 630, Japan
SO Chemistry Letters (1990), (9), 1631-4
AB A novel strategy is proposed for the development of a chem. **sensor** based on the **electrochem**. nonlinearity of solid/liq. interfaces. At these interfaces, the capacitance and conductance change markedly depending on the applied voltage. A sinusoidal voltage is applied to a test soln. and the resulting output current is analyzed by fast Fourier transformation (FFT). From the higher harmonic components in the FFT, voltage dependences of both capacitance and conductance are evaluated. This method may be used as an anal. tool provided that suitable metal electrodes are selected.

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=> d bib,ab l1

L1   ANSWER 1 OF 1  CA  COPYRIGHT 2003 ACS on STN
AN   116:267974  CA
TI   Chemical sensors
AU   Janata, Jiri
CS   Mol. Sci. Res. Cent., Pac. Northwest Lab., Richland, WA, 99352, USA
SO   Analytical Chemistry (1992), 64(12), 196R-219R
AB   A review with many refs.  Thermal sensors, mass sensors, electrochem.
     sensors, optical sensors, and biosensors are discussed.

=> log y
STN INTERNATIONAL LOGOFF AT 09:41:45 ON 25 SEP 2003

=> d his

     (FILE 'HOME' ENTERED AT 11:22:40 ON 25 SEP 2003)
     FILE 'CA' ENTERED AT 11:22:49 ON 25 SEP 2003
          E SESTAK S/AU
L1      4 S E3,E6-7
L2      2 S L1 AND SENSOR
          E CONN C/AU
L3     19 S E3,E13
L4      3 S L3 AND(SENSOR OR DETECTOR)
          E LAKE M/AU
L5     50 S E3,E5,E8,E25-30
L6      2 S L5 AND(SENSOR OR DETECTOR)
          E BAKER A/AU
L7    103 S E3,E36,E165,E170
          E BAKER TONY/AU
L8      5 S E3
          E UNSWORTH J/AU
L9      2 S L7-8 AND(SENSOR OR DETECTOR)
L10    62 S E3,E7,E13
L11     4 S L10 AND(SENSOR OR DETECTOR)
L12     6 S L2,L4,L6,L9,L11
L13   734 S CHEMORESIST?
L14 29593 S (POLYANIL? OR POLYPYR? OR POLYTHI? OR POLYMER? OR POLY(1W)(ANILIN? OR
          PYRROL? OR THIOPHE?))(3A)(CONDUCTING OR CONDUCTIVE OR DETECTOR OR
          SENSOR OR DETECTING OR SENSING OR CONDUCTIVE OR RESISTIVE OR
          CONDUCTANCE)
L15 15637 S L14 NOT PY>1997
L16  4258 S L15 AND(DOPED OR DOPING OR DOPANT OR CARBON BLACK)
L17   918 S L15 AND CARBON BLACK
L18    87 S L17 AND STABIL?
L19     5 S L18 AND(SENSOR OR SENSING OR DETECTOR OR DETECTER OR DETECTION OR
          DETECTING)
L20  2858 S L15 AND(SENSOR OR SENSING OR DETECTOR OR DETECTER OR DETECTION OR
          DETECTING)
L21  1023 S L20 AND(CHEMICAL(3A)(SENSOR OR DETECTOR)OR ELECTRODE OR
          MICROELECTRODE)
L22    23 S L20 AND CHEMICAL(3A)(SENSOR OR DETECTOR) AND ELECTROCHEM?(3A)(SENSOR
          OR DETECTOR)
L23    59 S L21 AND COMPOSITE
L24    34 S L21 AND(PARTICLE OR MICROPARTICLE OR NANOPARTICLE)
L25    69 S L21 AND(FIBER OR FIBRE OR MICROFIBER OR NANOFIBER)
L26    25 S L13 AND L14
L27    13 S L26 NOT PY>1997
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L28 327 S L16 NOT L17 AND STABIL?
L29 29 S L28 AND(SENSOR OR SENSING OR DETECTOR OR DETECTER OR DETECTION OR DETECTING)
L30 224 S L12,L19,L22-25,L27,L29

=> d bib,ab 1-224 l31

L31 ANSWER 22 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 127:214197 CA
TI Impedance analysis for the optimization of **electrochemical sensors**
AU Hinton, Andrew J.; Evans, Nigel J.
CS Solartron Instruments, Farnborough, GU14 7PW, UK
SO Proceedings - Electrochemical Society (1997), 97-19(Chemical and Biological Sensors and Analytical Electrochemical Methods), 809-814
AB Impedance anal. is a powerful nondestructive tool for analyzing a range of **chem.** and biol. **sensor** systems. The benefits of this technique are accurate and repeatable results which are unobtainable by other electrochem. means. Impedance techniques allow the optimization of **sensor** materials and the exploration of reaction mechanisms occurring at **sensing** surfaces. The technique is applicable to a wide variety of **sensing** technologies including solid state devices and **conducting polymer** chemiresistors. The use of impedance anal. allows the study of electrochem. processes which have different rate kinetics. The curve fitting procedures and subsequent modeling of impedance spectra to equiv. circuits allows simple electronic components to portray the electrochem. properties of **sensing** devices. The use of impedance measurements to obtain meaningful data relating to material structure and chem. interactions are discussed.

L31 ANSWER 23 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 127:194518 CA
TI Enhanced **stability**, reversibility and sensitivity of **conductive polymer**-based volatile organic compound **sensors**
AU Yamagishi, Frederick G.; Stanford, Thomas B.; Van Ast, Camille I.; Miller, Leroy J.; Gilbert, Harold C.
CS Hughes Research Laboratories, Malibu, CA, 90265, USA
SO Proceedings - Electrochemical Society (1997), 97-19(Chemical and Biological Sensors and Analytical Electrochemical Methods), 103-108
AB Volatile org. compd. (VOC) **sensors** were developed using **conductive polymers** as active transducers. Thin films of **conductive polymers** are deposited across Au inter-digitated electrodes by dipping or spinning. Transducer cond. can be monitored and is modulated by the presence of certain, even chem. inert, VOC. VOC **detection** results from structural perturbation in the **conductive polymer** caused by a direct interaction of the **conductive polymer** with the pollutant, or from a structural change in the counterion with which the **conductive polymer** is assocd. With appropriate electronics, these **sensors** are components of a multi-**sensor** array capable of VOC speciation. Polyaniline and derivs. of polythiophene were selected as transducer **conductive polymers**. These materials are readily made in bulk quantity, and, in some cases, can be prepd. in a sol. form so that films can be prepd. by casting or spinning. Specific VOC were selected by class representatives (i.e., arom. hydrocarbons, esters, ketones) for theses studies. Through appropriate combinations of silane surface coupling agents, surfactants, **conductive polymer** counter ions, and advanced signal processing techniques, sensitivity thresholds of ppm were obsd. The combination of components also enhanced **sensor stability** and reversibility.

L31 ANSWER 28 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 127:122157 CA

TI **Conducting polymers** and their applications in sensorics
AU Dunsch, Lothar; Bartl, Anton; Neudeck, Andreas
CS Institut Festkorper- Werkstofforschung Dresden e.V., Dresden, Germany
SO Wissenschaftliche Zeitschrift der Technischen Universitaet Dresden (1997), 46(3), 73-79
AB A review with 34 refs. about the research activities on the title subject at the Institute for Materials and Solid State Research (IFW) e.V. at Dresden, Germany. The basic phys., **chem.**, **electrochem.**, and magnetic **sensor** properties of the 2 most important **conducting polymers** for **sensor** applications, **polypyrrole** and **polyaniline**, were described. For polypyrrole, microstructuring based on a lithog.-galvanic-reprodn. technique could be applied and 1st applications of this **conductive polymer** as an electrode in spectroelectrochem. **sensors** or as active material in surface acoustic wave devices were demonstrated.

L31 ANSWER 32 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 127:81858 CA
TI Enhanced sensitivity in sensory materials: **conducting polymer**-based polyreceptor assemblies
AU Swager, Timothy M.
CS Department of Chemistry, Massachusetts Institute of Technology, USA
SO Annual Technical Conference - Society of Plastics Engineers (1997), 55th(Vol. 2), 1476-1479
AB We will present a no. of approaches to the design and synthesis of **conducting polymer**-based sensory materials. **Conducting polymers** are ideal sensory materials since their cond. and photophys. properties are very sensitive to chem. compn. and electronic perturbations. We have synthesized polythiophenes which display ion specific changes in their band gap. Other approaches to ion sensory materials make use of the electronic perturbation induced by ion complexation. We have also developed polymers which contain electron rich macrocycles capable of hosting electron poor org. compds. These charge transfer complexes are a direct result of the macrocyclic structure and are not obsd. in non-macrocyclic analogs. In one system we have demonstrated a novel **chemoresistive** effect in which the cond. is lowered by paraquat. We have also demonstrated how a fluorescence-based chemosensory response can be enhanced (amplified) by migration of the photogenerated exciton to a complexed site.

L31 ANSWER 40 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 126:220118 CA
TI Gas **sensing** properties of **polypyrrole doped** with metallomacrocycles
AU Potje-Kamloth, Karin; Liess, Hans-Dieter
CS Fak. Elektrotechnik, Inst. Phys., Univ. Bundeswehr Muenchen, Neubiberg, 85577, Germany
SO Proceedings of the East Asia Conference on Chemical Sensors, 2nd, Xi'an, Peop. Rep. China, Oct. 5-8, 1995 (1995), 156-158 Publisher: International Academic Publishers, Beijing, Peop. Rep. China.
AB The influence of electrochem. active counterions like metal complexes of phthalocyanines incorporated into the polypyrrole matrix on its chem. **sensing** properties was studied. Polypyrrole was electrochem. polymd. from aq. soln. in the presence of these electrochem. active anions, which were thereby incorporated as counterions in the polymer matrix. Spectroelectrochem. expts. show that in comparison to smaller anions the insertion of these large inherently robust macrocyclic complexes into the polypyrrole matrix enhances the mech. and chem. **stability** of the polymer films. The polymer films studied exhibit new **sensing** properties to gases such as nitrogen oxide and dimethylmethylphosphonate, which are attributed to the sensitivity introduced by incorporated macrocyclic counterions.

L31 ANSWER 41 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 126:202988 CA
TI Novel vapor **sensor** based on **chemical** coupling effect of **composite**
AU Chen, Xiangdong; Yang, Daben; Jiang, Yadong; Wu, Zhiming; Wang, Shaohong; Li, Dan
CS Department of Materials Science and Engineering, University of Electronic Science and Technology, Chengdu, 610054, Peop. Rep. China
SO Proceedings of SPIE-The International Society for Optical Engineering (1997), 3040(Smart Materials Technologies), 271-278
AB A **sensing** material was developed for constructing a **sensor** of solvent vapors using chem. coupling effect of **composite**, which is different from conventional electron-moving chemiresistors for use as gas **sensors**. The **composites** consisting of **polymer** loaded with **conductive** filler near the percolation threshold exhibit sensitive characters comparable to that of conventional semiconductor gas **sensor** but can be realized with much simpler technol. and operated at room temp. This **sensor** can also obtain better selectivity by choosing different polymer matrix. Theoretic anal. and exptl. results show sensitive properties of **composite sensor** greatly depend on compn. of **composite** and grain size of conducting **particles**. In general resistance variation R/R0 in the presence of vapor is more for higher vol. fraction of filler and larger grain size of conducting **particles**.

L31 ANSWER 57 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 125:70117 CA
TI H2O2 from an oxidase enzyme can be detected cathodically using metal **microparticles** dispersed in a polymeric film **electrode**
AU Somasundrum, Mithran; Tanticharoen, Morakot; Kirtikara, Krissanapong
CS School of Bioresources and Technology, King Mongkut's Institute of Technology, Thonburi, Bangkok, 10140, Thailand
SO Journal of Electroanalytical Chemistry (1996), 407(1-2), 247-251
AB Identification was sought of the requirements for the **detection** of H2O2 from glucose oxidase at Rh dispersed C paste, enabling a sensitive response and a low operating potential. Deposition of Rh, Pd and hence possibly the other Pt-group metals into a **conducting polymer** can produce a surface suitable for reducing H2O2 without significantly reducing O2. Rh was not located on the underlying **electrode**, so presumably a given **conducting polymer** can be used on different **electrode** materials.

L31 ANSWER 61 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 125:17464 CA
TI **Conducting polymer**-based **chemical sensor**: characteristics and evaluation of polyaniline **composite** films
AU Unde, Swati; Ganu, J.; Radhakrishnan, S.
CS Polymer Science and Engineering, National Chemical Laboratory, Pune, 411 008, India
SO Advanced Materials for Optics and Electronics (1996), 6(3), 151-157
AB A **conducting polymer**-based **chem. sensor** was fabricated by depositing a film contg. polyaniline blended with polyethylene oxide and doped with copper chloride onto interdigitated **electrodes** in a surface cell configuration. It was sensitive to alc. vapors, esp., MeOH. Its characteristics such as response time (tr), recovery time (td), sensitivity factor ($\sigma max/\sigma 0$), etc. have been studied with respect to film compn., chem. vapor dosage, etc. The sensitivity was max. and tr min. at a certain concn. of polyaniline in the film matrix. Although the response was quite fast ($tr < 10$ s), the recovery was slow and in many cases followed a 2-step process. The 2 components in the recovery were clearly delineated in log-log plots, from which one could be assocd. with diffusion and the other with selective residual adsorption of the chem. vapor by the **conducting polymer** moieties. These results have

been discussed in the light of the charge transport mechanism and the formation of interfacial barriers between polyaniline domains.

L31 ***ANSWER 74 OF 224*** CA COPYRIGHT 2003 ACS on STN
AN 124:9909 CA
TI Molecular recognition and **chemoresistive** materials
AU Swager, Timothy M.; Marsella, Michael J.
CS Dep. Chem., Univ. Pennsylvania, Philadelphia, PA, 19104, USA
SO Advanced Materials (Weinheim, Germany) (1994), 6(7/8), 595-7
AB A review, with 10 refs., is given on the design of **conducting polymeric** sensory materials. They exhibit ionochromic, electrochem., or resistive responses to specific chem. signals. The integration of mol. recognition elements into polymers of pyrrole, thiophene, and bithiophene is described.

L31 ***ANSWER 75 OF 224*** CA COPYRIGHT 2003 ACS on STN
AN 123:352978 CA
TI Ionoresistivity as a highly sensitive sensory probe: investigations of polythiophenes functionalized with calix[4]arene-based ion receptors
AU Marsella, Michael J.; Newland, Robert J.; Carroll, Patrick J.; Swager, Timothy M.
CS Department of Chemistry, University of Pennsylvania, Philadelphia, PA, 19104-6323, USA
SO Journal of the American Chemical Society (1995), 117(39), 9842-8
AB The authors report the synthesis, optical, and electrochem. properties of a calix[4]arene-substituted polythiophene which demonstrates ion-selective voltammetric, chromic, fluorescent, and resistive responses. The ionochromic response of this polythiophene on exposure to Na+ shows an increased effective conjugation length of the polymer backbone. Despite this, Na+ induces a large pos. shift in the potential at which the polymer is oxidized (greater than +100 mV) commensurate with a large decrease in cond. (>99%). Although the calix[4]arene-substituted polythiophene exhibits no changes in the UV-visible spectrum and only minimal changes in the voltammetric responses on exposure to Li+ or K+, there are large decreases in relative conductivities (69 and 47%, resp.). Thus, although the sensory properties of this polymer are expressed via several measurable entities, the ionoresistive response is clearly the most sensitive. This sensitivity originates from the cooperative nature of carrier transport in a **conducting polymers** (CP) and is thus inherent in **chemoresistive** CPs.

L31 ***ANSWER 76 OF 224*** CA COPYRIGHT 2003 ACS on STN
AN 123:352977 CA
TI Design of **chemoresistive** sensory materials: polythiophene-based pseudopolyrotaxanes
AU Marsella, Michael J.; Carroll, Patrick J.; Swager, Timothy M.
CS Department of Chemistry, University of Pennsylvania, Philadelphia, PA, 19104-6323, USA
SO Journal of the American Chemical Society (1995), 117(39), 9832-41
AB The authors report **conducting polymer**-based **sensors** which transduce reversible, noncovalent, and non-redox-dependent mol. recognition events into measurable changes in cond. These **chemoresistive** polymers are derived from bithiophenes contg. cyclophane receptors capable of forming self-assembled pseudorotaxane complexes with paraquat. The electrostatic perturbations arising from pseudopolyrotaxane formation cause a decrease in carrier mobility and thus lower the cond. The **chemoresistive** response was consistent with decreased carrier mobility and exhibited an enhanced sensitivity to analyte-promoted electrostatic perturbations relative to the voltammetric response. Polymer-based devices which demonstrate a real time **chemoresistive** response to paraquat are also reported.

L31 ANSWER 103 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 121:67947 CA
TI **Conducting polymer**-clay **composites** for electrochemical applications
AU Faguy, Peter W.; Ma, Wanli; Lowe, J. Alan; Pan, Wei Ping; Brown, Terri
CS Dep. Chem., Univ. Louisville, Louisville, KY, 40291, USA
SO Journal of Materials Chemistry (1994), 4(5), 771-2
AB Pyrrole can be polymd. within montmorillonite clays via chem. means using Fe3+ and Cu2+ as the oxidizing species. The resultant **composite** has properties of both the **conducting polymer** and the host material. Vibrational spectroscopy, thermal anal. and cond. data all indicate that polypyrrole is present in the interlayer region of the clays used. Electrochem., the **conducting polymer**-clay **composite** shows promise for both **sensor** and electrolysis applications. Cyclic voltammetry was studied for ascorbic acid oxidn. at carbon paste **electrode** and **conducting polymer**-clay **composites**/carbon paste **electrodes**.

L31 ANSWER 115 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 120:123607 CA
TI Design of **conducting polymer** gas **sensors**: modeling and experiment
AU Gardner, J. W.; Bartlett, P. N.
CS Dep. Eng., Univ. Warwick, Coventry, CV4 7AL, UK
SO Synthetic Metals (1993), 57(1), 2665-70
AB The use of **conducting polymers** as active materials in **chem. sensors** is growing rapidly; for example they were used in the place of metal oxides to sense gases and vapors, such as NH3, NO2 and alcs. Here the authors model a **polymer** gas **sensor** in terms of homogeneous diffusion coupled to simple adsorption within a bounded layer. From the model the authors present anal. expressions of the adsorbate profiles for the diffusion-rate limited, reaction-rate limited and intermediate cases in terms of fundamental dimensionless parameters. The model is then used to calc. the conductance of a typical chemiresistor which consists of a pair of coplanar electrodes below on electropolymd. thin polymer film and on an impermeable substrate. The anal. expression for the elec. field is combined with the diffusion reaction equations by assuming an single carrier conduction model. Finally, the theor. chemiresistor response is calcd. in 6 limiting cases and compared with exptl. data on pyrrole-based **conducting polymers**. In practice the gas-polymer interaction probably is much more complex and so the authors are extending the model to consider in more detail the conduction principles.

L31 ANSWER 116 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 120:66636 CA
TI Development of electrically conductive poly(3-hexylthiophene) as a thin-film **sensor** for hydrazine vapor
AU Ellis, D. L.; Zakin, M. R.; Bernstein, L. S.; Rubner, M. F.
CS Harvard Univ., Cambridge, MA, 02138, USA
SO Materials Research Society Symposium Proceedings (1993), 293(Solid State Ionics III), 159-62
AB Thin films of the elec. **conducting polymer** poly(3-hexylthiophene) (P3HT), were developed as **sensors** for hydrazine vapor at the part-per-billion level. The P3HT films were fabricated by a spin coating technique onto quartz substrates incorporating gold interdigitated electrodes, and were rendered conductive by **doping** with an NOPF6 soln. The **sensors** respond strongly and instantaneously to hydrazine concns. as low as 1 part-per-billion with a measurement accuracy of ±20%. In addn., the **sensors** exhibited excellent environmental **stability**, long shelf life, and good interference rejection.

L31 ANSWER 137 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 117:182461 CA

TI **Sensing** properties of **polypyrrole**-polytetrafluoroethylene **composite** thin films from granular metal-polymer precursors
AU Bruschi, P.; Cacialli, F.; Nannini, A.
CS Sc. Super. Stud., Univ. Perfezionamento S. Anna, Pisa, I-56127, Italy
SO Sensors and Actuators, A: Physical (1992), A32(1-3), 313-17
AB A new class of **sensor**-oriented **composite** conducting thin films was grown utilizing an original method. The technique is based on the chem. polymn. of pyrrole (PY) vapors onto an oxidizing salt pattern obtained via chlorination of a cosputtered granular metal thin film. The time stability of the samples realized with this technol. approach and their response to exposure to different atmospheres were studied; the behavior of the material subjected to mech. strain was also investigated.

L31 ANSWER 143 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 117:19329 CA
TI Electroconducting conjugated polymers: new sensitive matrixes to build up **chemical** or **electrochemical sensors**. A review
AU Bidan, Gerard
CS Lab. Electrochim. Mol., Cent. Etud. Nucl. Grenoble, Grenoble, F-38041, Fr.
SO Sensors and Actuators, B: Chemical (1992), B6(1-3), 45-56
AB A review with 65 refs. Electroconducting conjugated polymers, ECPs, appear very attractive for use in **sensors** either as sensitive components or as a matrix for easy immobilization of specific substrates. This is due to their intrinsic properties: a one-step electrosynthesis in the form of an adherent film deposited at the surface of the electrode with anionic species being included by doping. This doping reaction makes it possible to modulate the cond. reversibly over several orders of magnitude via redox interactions. ECP-based gas **sensors** are sensitive to gases (NO2, NH3, etc.) affecting the doping level, which results in a straightforward conductance monitoring. ECP-based ionic **sensors** amperometrically detect electroinactive ions, since the doping of the ECP results in a current flow. The ion-sieving effect allows some selectivity by cut-off size. SGFET microelectrochem. 'transistor' devices are sensitive to pH. Immobilization with a good 'elec. wiring' of enzymes in ECP films explains the increasing interest in research on ECP-based biosensors. An interesting approach is the simultaneous inclusion of an enzyme (glucose oxidase) with an anionic electron relay. A lifetime of 60 days has been reported. The versatile properties of ECP promise improvements in specificity, enzyme wiring and lifetime.

L31 ANSWER 155 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 115:115889 CA
TI Plasma polymer deposition from indium acetylacetonate and its application to **chemical sensor** devices
AU Inagaki, N.; Ohkubo, J.
CS Fac. Eng., Shizuoka Univ., Hamamatsu, 432, Japan
SO Journal of Applied Polymer Science (1991), 43(4), 793-800
AB Plasma polymn. of In acetylacetonate (I) was investigated from the viewpoint of the material prepn. for application to **chem. sensor** devices. The plasma polymn. of I resulted in the deposition of films, which were hydrocarbon-like polymers with fine **particles** of In oxides. The deposition rate and the chem. compn. of the deposited films were strongly influenced by the system pressure in operating the plasma polymn., as well as by the substrate temp. The deposited films possessed n-type semiconductive properties and responded to reducing gases, such as CO, H2, C3H8, and C2H5OH, with increasing cond. The **sensor** device composed of the films deposited from In showed extremely high sensitivity to CO and higher gas selectivity than the **sensor** devices consisting of SnO2 and ZnO2.

L31 ANSWER 179 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 111:66621 CA
TI Electrochemical encapsulation of solid state devices
AU Potje-Kamloth, Karin; Josowicz, Mira
CS Univ. Bundeswehr Muenchen, Neubiberg, D-8014, Fed. Rep. Ger.
SO NATO ASI Series, Series E: Applied Sciences (1989), 160(Heterostruct. Silicon), 281-8
AB A generic encapsulation procedure was studied which uses an electrochem. generated insulating precursor which is subsequently thermally cured to form an insulating film or coating. The materials encapsulated included: Pt, Au, W/Ti alloy, Al, Ta, Mo and Si which are found in solid state devices e.g. integrated **chem. sensors**. A representative film is poly(oxyphenylene) formed by electrochem. oxidn. of 2-allylphenol in a H2O/MeOH/butylcellosolve mixt.

L31 ANSWER 184 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 110:184953 CA
TI Electrolytic media for **chemical sensors**
AU Madou, Marc; Otagawa, Takaaki
CS SRI Int., Menlo Park, CA, 94025, USA
SO Solid State Ionics (1988), Volume Date 1987, 28-30(Pt. 2), 1653-9
AB Four types of all-solid-state **chem. sensors** are discussed. Three use introduced ionic media (hydrogels, solid-polymer electrolytes and **composites**, solid electrolytes) and one spaces the **electrodes** so close together (submicron spacing) that measurements can be made in air without any further ionic medium. The resulting **chem. sensors** have application in a variety of fields and the likelihood of growth in the use of each type is assessed.

L31 ANSWER 185 OF 224 CA COPYRIGHT 2003 ACS on STN
AN 110:155645 CA
TI Plasma-polymerized metal phthalocyanine films: preparation, properties and morphology
AU Sadhir, R. K.; Schoch, K. F., Jr.; Wood, S.
CS Mater. Technol. Div., Westinghouse Res. Dev. Center, Pittsburgh, PA, 15235, USA
SO Synthetic Metals (1988), 26(4), 391-402
AB Thin polymeric Ni phthalocyanine and Pb phthalocyanine (I) films were prepd. by plasma polymn. The phthalocyanine ring structure was largely undisturbed by this process. I deposited in the high RF flux d. regime produced some Pb **particles** incorporated in the film, which were confirmed by electron diffraction patterns. In general the crystallite size of plasma-polymd. phthalocyanine films was much smaller than that for the chem. vapor deposited phthalocyanine films. Plasma-polymd. phthalocyanine films deposited on interdigitated **electrodes** were evaluated as **sensors** for oxidizing and reducing gases. They showed fast response and excellent sensitivity to ppm level concns. of NO2 in air.

=> log y
STN INTERNATIONAL LOGOFF AT 12:17:50 ON 25 SEP 2003